

Docket No.: H0003211-3132  
(BSKB: 2929-0223P)  
(PATENT)



IN THE U.S. PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Magdy M. SALAMA et al.

**Before the Board of Appeals**

Application No.: 10/630,684

Confirmation No.: 7661

Filed: July 31, 2003

Art Unit: 2838

For: HIGH-VOLTAGE POWER SUPPLY

Examiner: Gary L. Laxton

**REPLY BRIEF**

MS Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

October 16, 2006

Sir:

Pursuant to 37 C.F.R. § 41.41, Appellants respectfully submit the following Brief in Reply to the Examiner's Answer dated August 16, 2006. Only issues raised in the Examiner's Answer are addressed in this Reply; the arguments from Appellants' Appeal Brief dated May 19, 2006 are maintained, but are not repeated herein.

**I. The Examiner's Reliance on Case Law is Misplaced**

By way of review, Independent claim 1 is directed to a high-voltage power supply (HVPS). The HVPS of claim 1 comprises: a power scaling section receiving an input voltage signal and converting the input voltage signal to a controllable DC voltage; a push-pull converter for converting the controllable DC voltage to a high-frequency wave; and a voltage multiplier receiving the high-frequency wave generated by the push-pull converter and performing successive voltage doubling operations to generate a high-voltage DC output, the generated high-

voltage DC output being varied as the controllable DC voltage varies. Therefore, the high-voltage power supply according to this aspect of the claimed invention generates a variable high-voltage output, based on the controllable DC voltage generated by the power scaling section, using a push-pull converter to convert a controllable DC voltage to a high-frequency wave and using a voltage multiplier to perform successive voltage doubling operations on the high-frequency wave output by the push-pull converter to achieve the desired high voltage output (see e.g., specification, paragraphs [0017]-[0018]).

As depending from claim 13 (which depends on claim 1), claim 16 further defines the High Voltage Power Supply (HVPS) of claim 1 by specifying that that the voltage multiplier of the HVPS includes a plurality of voltage doubler stages on a circuit board and that the HVPS further comprises an insulation system associated with the circuit board, wherein the plurality of voltage doubler stages are divided among multiple circuit boards, separate from the power scaling section and the push-pull converter.

In response to Appellants' argument that the asserted prior art fails to teach or suggest this particular HVPS circuit board arrangement, the Examiner asserts on pages 21 and 22 of the Answer that:

it would have been obvious to duplicate the numerous stages in order to provide the necessary multiplication factor since the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Additionally, it would have been obvious to separate the power supply from the multiplier since constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Initially, Appellants submit that this reasoning mischaracterizes the invention defined in claim 16, which does not merely relate to an obvious integration of circuit boards or a routine duplication of parts, and instead defines a particular arrangement of a plurality of voltage doubling stages relative to a power scaling section and a push-pull converter of an HVPS, providing certain benefits described for example at paragraph [0037] of the present application.

Appellants further note that reliance on the *St. Regis Paper* and *Nerwin* decisions is misplaced. The cited *St. Regis Paper* decision addressed the question of obviousness in the context of a claimed multi-ply bag. *St. Regis Paper*, 193 USPQ at 11. The *Nerwin* decision addressed the question of whether a patent specification supports an interference count in the context of a photographing apparatus structure. *Nerwin*, 168 USPQ at 179. The factual issues addressed in these decisions are in no way related to the facts of the present appeal, and the holdings therein do not support a conclusion of obviousness for the specifically claimed HVPS circuit board arrangement recited in claim 16. *See e.g.*, MPEP §2144, which states that “Legal Precedent Can Provide Rationale Supporting Obviousness Only if the Facts in the Case are Sufficiently Similar to those in the Application.” At least for this reasoning, the rejection of dependent claim 16 is deficient.

## **II. Deficiencies in the Asserted Combination(s) of Shelly and Gallios**

The Examiner’s Answer acknowledges that the power supply of *Shelly* lacks a voltage multiplier for performing successive voltage doubling operations to generate various desired high output voltage levels, but relies on the secondary teachings of *Gallios* as allegedly making up for this deficiency of *Shelly*, stating on page 17 that:

it would [have] been obvious to modify *Shelly* to include a voltage multiplier in order to power an electronic system such as those found in TV sets that requires high voltage and high output power as taught by *Gallios*.

The Answer further states on page 18 that such a modification would require “no significant redesign at all.” Appellants disagree that this reasoning supports a conclusion of obviousness.

As discussed in Appellants’ Appeal Brief, *Shelly* discloses a power supply having: a DC-DC chopper-converter unit 10, which converts an input voltage VIN to a lower voltage; and a DC-DC inverter-converter 12, which converts the voltage output by the DC-DC chopper-converter 10 to an output voltage VOUT. This arrangement of *Shelly* regulates voltage appearing at the load despite load variations, thereby addressing drawbacks experienced in low voltage applications (e.g., PC power supply; see e.g., col. 1, lines 6-25). There is no statement or suggestion in *Shelly* that the

power supply arrangement disclosed therein is for providing variable output power. Furthermore, there is no suggestion within the art to somehow modify this arrangement of *Shelly* to provide variable high voltage power using successive voltage doubling operations on a high frequency wave. The Examiner's statement of obviousness finds no evidentiary support in the record, and instead appears to result from impermissible hindsight reasoning. Furthermore, the Examiner's assertion that such a modification would require "no significant redesign at all" fails to recognize that the effectiveness of the voltage regulation scheme disclosed by *Shelly* is based entirely on a current sensing arrangement (circuit 14 in Fig. 1) that is sensitive to load variations, which would at least be significantly diminished by incorporating a series of successive voltage doubling stages on the output side of the transformer T1 as asserted.

The Examiner's Answer alternatively asserts on pages 9-11 that an allegedly obvious modification of *Gallios* in view of *Shelly* establishes obviousness, stating that:

it would have been obvious . . . to modify *Gallios* et al. to include a power scaling section (e.g., a DC chopper) receiving an input voltage signal and converting the input voltage signal to a controllable DC voltage as expressly taught by *Shelly* in order to convert a high voltage unregulated DC input voltage to a lower regulated DC voltage to be used by an inverter section that receives the regulated DC output voltage from the chopper and converts that voltage to a regulated DC output voltage for use by the load.

Appellants note that the prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-09, 200 USPQ 504, 510 (CCPA 1979). The newly-asserted modification of *Gallios*, however, finds no suggestion in the prior art or in knowledge generally available to those skilled in the art, and instead appears to be based on impermissible hindsight reasoning, whereby the Examiner is relying on guidance from the claimed invention to somehow combine prior art teachings. There is no suggestion that

the power supply converter of *Gallios* would benefit from incorporating the cited components from the low voltage supply of *Shelly*.

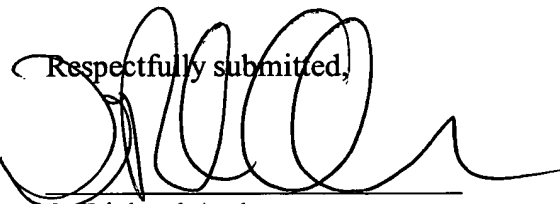
### III. CONCLUSION

For the above reasons, taken in conjunction with reasoning presented in Appellants' Appeal Brief, the withdrawal of the outstanding rejections and the allowance of all pending claims are earnestly solicited.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this paper and to credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,



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